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ABSTRACT

This report presents data on Tennessee's teaching workforce. There has been a recent increase in the percentage of new, inexperienced teachers hired in Tennessee. While there was no change in teacher turnover in recent years, the loss of new teachers became more serious throughout the 1990s. Lack of teacher and administrator diversity remained a problem throughout the 1990s, though the percentage of African American teachers increased by 3 percent each year from 1997-99. Every year, about three-fourths of new graduates hired to teach came from Tennessee colleges and universities. There was little diversity in Tennessee's teacher education program graduates. More new graduates were being hired for Tennessee's classrooms in the new millennium than in the early 1990s. Most preservice programs prepared many more teachers for elementary than secondary education, and there was a shortage of mathematics and science teachers. For some subjects, Tennessee's reserve pool (licensed teachers who are not teaching) is very small. Teacher supply varies by subject matter and geographic area within the state. The demand for teachers is very uneven across the state. Factors influencing teacher demand include student enrollment trends, standards for student-to-teacher ratios, and state efforts to reduce class size. (SM)

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Teacher Supply and Demand in Tennessee

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Lynn Cornett, Senior Vice President, SREB, prepared this summary report. Detailed supply and demand information prepared for Tennessee by James Wilson, Data and Decision Analysis Incorporated, can be viewed at www.state.tn.us/education under Statistics and Reports.

Teacher Supply and Demand in Tennessee

Who is hired to teach in Tennessee's classrooms?

The hiring pattern for teachers in Tennessee changed in the 1990s. At the beginning of the decade, half of the newly hired teachers (those who were not teaching the year before) were new graduates and half were experienced teachers returning to the classroom. By the end of the decade, 60 percent were new graduates, while 40 percent were experienced teachers. More than 3,000 new teachers with no experience were hired in 1999, compared with 1,400 in the early '90s. More than 25 percent of teachers have less than five years of experience. The increased percentage of inexperienced teachers was because of increased hiring of teachers to reduce class sizes, accommodate growth in the number of students, and replace retiring teachers.

However, the overall supply of teachers often is misunderstood. Discussions of teacher supply usually address only the number of new graduates, but new graduates are a small portion of teachers hired every year. For instance, 90 percent (about 48,200 teachers) of the teachers in 1999 had been in Tennessee's classrooms the year before. Another 4 percent were experienced teachers who were returning to the classroom, and 6 percent were new teachers with no experience.

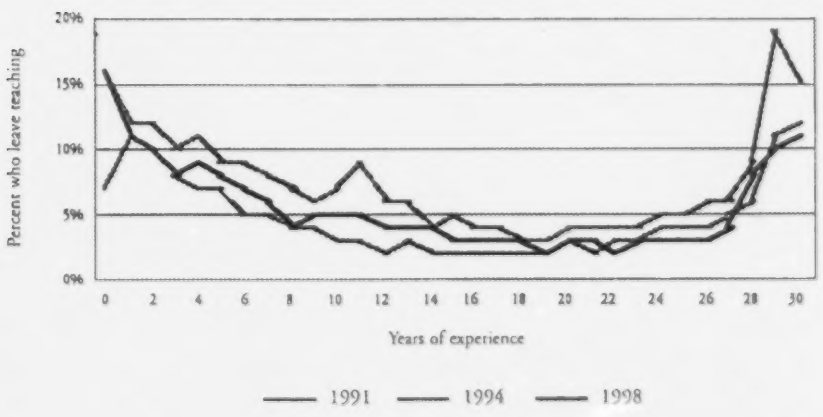
Supply of Teachers, 1999

Keeping new and veteran teachers in the classrooms is important to maintaining a stable work force and preventing shortages. Most teachers who leave don't return. The likelihood that teachers who quit will return to the profession is greatest within one year after they leave; the longer they are out of education, the less likely they are to return to teaching. Including retirees, only 16 percent to 18 percent of former educators in Tennessee return.

Is Tennessee losing educators at higher rates than earlier in the decade, when the Education Improvement Act was passed?

In the last five years there has been no change in the turnover of educators in Tennessee, which has averaged about 6 percent. However, this average doesn't tell the whole story. Among new teachers who have no previous experience, 36 percent leave within the first four years of teaching, and 42 percent leave within the first five years. The percentages are much lower for teachers with more experience. For example, teachers with at least 10 years of experience have an attrition rate of 5 percent. The percentages don't start to rise again until teachers are at retirement age — about 28 years of experience. Overall, teachers with five years of experience or less account for 40 percent of all educators who leave Tennessee classrooms. The loss of new teachers became more serious as the 1990s progressed. Early in the decade, 95 percent of first-year teachers stayed in the classroom; by the end of the decade, only 84 percent of first-year teachers returned for a second year. In 1998, the number of teachers with five years' experience or less who left the classroom was 1,701 — more than the total number of teachers with 11 or more years' experience who quit teaching (1,691). Retaining new teachers is a serious problem for Tennessee and other SREB states.

Attrition Rates of Teachers by Years of Experience



Who is teaching in Tennessee schools?

The diversity — or the lack of diversity — of educators changed very little in the 1990s. Three-fourths of all teachers in Tennessee were women, and the percentages of female administrators — especially principals and vice principals — increased steadily. However, there was little improvement in the small numbers of women in the top ranks. For example, women accounted for 15 percent of superintendents in 1999, compared with 13 percent five years earlier.

The total percentage of minority teachers did not increase in the 1990s, but African-American educators increased by about 3 percent each year from 1997 to 1999. The highest percentages of black educators are principals, assistant principals, high school business teachers and counselors. The good news is that, for the first time, the percentage of new teachers hired who were black (12 percent) increased. This share exceeded the percentage of black teachers leaving the profession (9 percent) as well as the percentage of black teachers remaining from the previous year (11 percent). Recruiting and retaining black teachers has been dismal for Tennessee, but the situation is similar to those in other SREB states. While percentages of minority students continue to grow, there have been no similar increases in the diversity of teachers. Tennessee has taken action with the Minority Teaching Fellows Program and Minority Teaching Education Grant Program; however, additional policies and actions are needed.

Characteristics of Tennessee Teachers, 1998-99

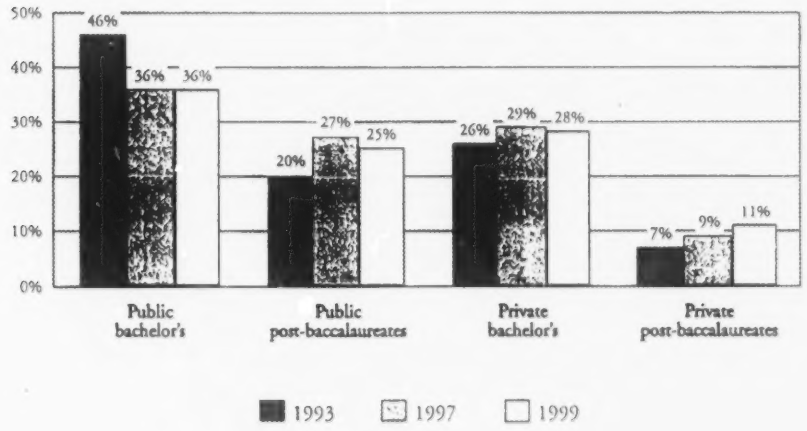
	Retained	Returned to classroom	New	Left
Average age	45	37	29	46
Average years of experience	15	7	0	14
Average salary	$36,601	$31,713	$26,099	$32,782
Percent black	11%	8%	12%	9%

Who is being prepared to teach in Tennessee schools?

The quality of Tennessee's schools clearly is linked to the quality of its teacher preparation programs. Every year, about three-fourths of the new graduates hired to teach graduated from Tennessee's colleges and universities. By making sure their graduates are ready to teach effectively in classrooms, a state's colleges and universities play a critical role in ensuring that all students receive a quality education.

In the last decade, the total number of teacher education graduates (at both public and private colleges and universities) increased 18 percent — to slightly more than 3,000 in 1999. Since the early '90s, the bachelor's programs in public colleges and universities have been accounting for a smaller percentage of the total number of teacher education graduates.

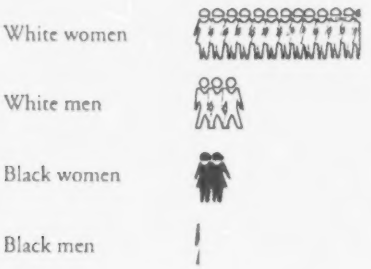
Educational Preparation of People Seeking First Licensure



While bachelor's programs in public colleges and universities accounted for 46 percent of graduates in 1993, only 36 percent of graduates in 1999 were prepared in such programs. In the '90s the percentage of graduates of public post-baccalaureate programs rose but then began to slip, while the percentage grew somewhat for private post-baccalaureate programs.

There is little diversity in graduates of teacher education programs in Tennessee. For every black male graduate, there are 10 black female graduates, 15 white male graduates and 65 white female graduates. The post-baccalaureate programs in Tennessee have slightly higher percentages of men and minorities than do the bachelor's programs.

Characteristics of People Prepared to Teach and Seeking First Licensure, 1999



How many graduates of Tennessee's teacher education programs become teachers in the state's classrooms? The good news is that more new graduates are being hired for Tennessee's classrooms now than in the early 1990s. Most teachers hired are graduates of bachelor's degree programs, but graduate programs contribute a significant number of teachers. At the beginning of the '90s, 40 percent of the bachelor's program graduates and 24 percent of the post-baccalaureate graduates from Tennessee's public colleges and universities were hired in Tennessee. By the end of the decade, 66 percent of the baccalaureates and 39 percent of post-baccalaureates were being hired in the state. Data were not available on those hired in other states or not entering teaching.

Hiring rates for graduates of private colleges and universities also increased in the 1990s. In the early '90s, 27 percent of graduates of bachelor's programs were hired in Tennessee; by the end of the decade, that figure was 41 percent. The percentage of graduates with post-baccalaureate degrees who were hired rose from 32 percent at the beginning of the decade to 37 percent at the end of it.

Most programs prepare many teachers for elementary schools. Two-thirds (6,934) of all graduates of public colleges and universities hired in the 1990s had majored in elementary, early childhood, multidisciplinary, special education or had completed majors prior to entering a post-baccalaureate program. On the other hand, few graduates are prepared to teach subject areas in secondary schools. In many subjects — such as foreign languages, sciences and mathematics — the numbers of graduates prepared and hired are quite small. For instance, in the 1990s public colleges and universities prepared 11 chemistry majors for Tennessee classrooms, and six entered teaching. There were 38 science education majors, and 17 began teaching. Of the 72 mathematics education majors, 50 percent entered teaching. Of the 171 mathematics majors seeking licensure, 63 percent began teaching. Since 1995, all teachers in Tennessee have been required to complete an academic major. Thus, those with majors such as elementary education or science education

were trained prior to 1995. These numbers in science and mathematics over a decade illustrate the reality that the shortages of graduates in some academic subjects are unlikely to go away. States such as Tennessee need to look at alternative ways — such as distance learning — to educate students in some shortage areas.

Does Tennessee have a teacher shortage?

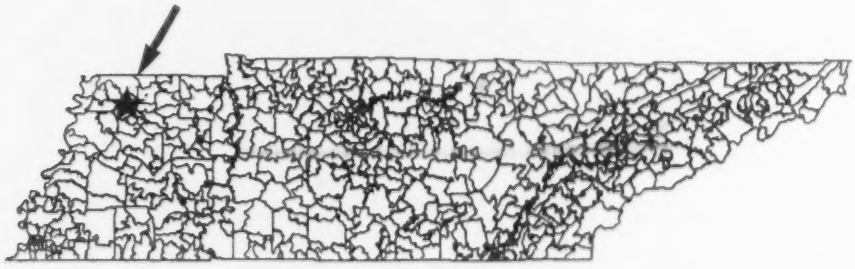
What is the supply of teachers?

The supply of teachers in Tennessee is examined best when all sources of teachers are considered — new graduates hired, former teachers who re-enter the profession, and, most importantly, those who remain in the classroom from year to year.

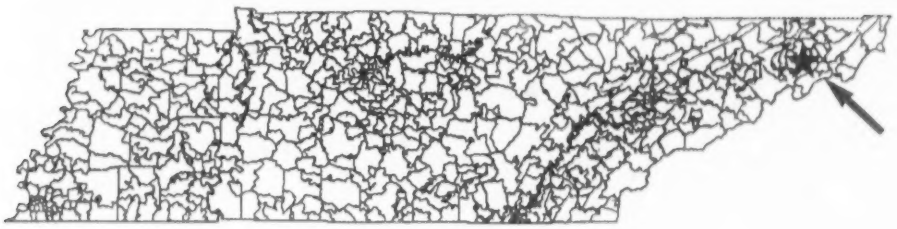
Another potential source of teachers is the "reserve pool" — licensed teachers who are not teaching. Studies show that teachers rarely return to the classroom after an absence of more than one or two years. For some subjects, however, Tennessee's reserve pool is very small, making it more diffucult to attract these "potential" teachers into classrooms. For instance, more than 16,000 teachers in the reserve pool have endorsements in elementary school teaching but only about 1,000 have endorsements in mathematics.

Teacher supply varies not only by subject matter but also by geographic area within the state. Data from Tennessee in the 1990s show very clearly that graduates tend to be hired in school systems near their home colleges or universities, while school systems in other parts of the state struggle to fill teaching positions. This pattern is similar to those in other states that have studied the trends. The following maps show the hiring patterns around two Tennessee universities.

University of Tennessee at Martin



Darkest shades show districts where more graduates are employed.



Darkest shades show districts where more graduates are employed.

How many teachers are needed?

How many teachers are needed in Tennessee, and where in the state are they needed? Are teachers — especially those who are being prepared to teach shortage subjects — willing to work in the parts of the state that need them? The demand for teachers is very uneven across the state. Thirty-five percent of all Tennessee educators work in five districts, and slightly more than half (51 percent) work in 13 of the state's districts. In Tennessee, as in other SREB states with large rural areas, 72 percent of all school districts have 400 or fewer students. These districts employ only 28 percent of the state's teachers. Demand for teachers, like supply of teachers, is regional.

Several factors influence demand for teachers. These factors include increases or decreases in student enrollment, standards for student-to-teacher ratios, and state efforts to reduce class sizes. This study of teacher supply and demand in Tennessee uses state standards for classrooms — Tennessee's mandate to reduce student-to-teacher ratios in different grades — to determine how many teachers might be needed.

Student enrollment in Tennessee has grown by about 3 percent for the last five years. In those years, the number of teachers hired increased by about 10 percent, indicating a reduction in student-to-teacher ratios. However, because it varies greatly by grade level and district, enrollment growth does not give a clear picture of the situation statewide. In the mid-1990s there were large increases in kindergarten enrollments. These students now are in the middle grades, and enrollments in junior high (grades seven and eight) are projected to increase until 2004.

Enrollment also varies considerably by district. For example, from 2000 to 2004, high school enrollments are projected to decrease in 30 percent of districts but to increase in 60 percent of districts. Twenty percent of districts should experience decreased enrollment in elementary schools, while 79 percent experience increases. The numbers of teachers needed by districts will fluctuate along similar lines.

Projected Enrollment Changes by District, 2000 to 2004

	Decreased enrollment	Same	Increased enrollment
Kindergarten	28%	4%	68%
Elementary school	20	1	79
Middle school (5-6)	27	1	72
Junior high school (7-8)	17	3	80
High school	30	10	60
Special education	12	14	74

Demand for teachers is reflected in how many teachers have credentials and how many have only waivers or permits. Statewide, about 4 percent of teachers have waivers or permits, but this figure also varies by school system. This problem can affect both urban and rural systems. In the largest urban system, 13 percent of teachers have waivers or permits. The next 10 highest percentages of permits and waivers are in rural districts; in these 10 districts, an average of 7 percent of teachers have only waivers or permits. In the second largest urban system, 5 percent of teachers have waivers and permits.

Another problem for districts and schools is that sometimes demand doesn't match available supply. The available teachers may not teach the subjects or grade levels needed. There are several subject areas in which shortages exist or may develop. A top concern for Tennessee, as for other SREB states, is the need for special education teachers, especially those who can teach students with visual or hearing disabilities. Teachers also are needed for foreign languages, English as a second language, mathematics and sciences, especially in the middle grades. Tennessee also faces shortages of guidance counselors and librarians. In the state's two largest urban areas, there even are shortages of social studies and elementary teachers.

Information helps districts and states create policies on teacher quality

This study for Tennessee includes district-by-district information on the supply of and demand for teachers. This information gives a more complete picture that can help decision-makers understand a particular problem or how different problems affect different areas of the state. Information for the state and each district typically includes:

- changes in student enrollment;
- data on trends in demographics and changes in the work force for teachers, administrators and professional staff;
- student-to-teacher ratios;
- sources of teachers;
- information on the experience levels of teachers hired;
- attrition of teachers; and
- licensure data — including information on the "reserve pool" and the number of permits and waivers.

State and district policies and actions often are not based on good data and information, which often are not available. That is not the case for Tennessee. The information from this study can help Tennessee answer several key questions:

- What are the challenges in getting a quality work force?
- How can the state assist schools in recruiting new teachers and retaining new and experienced teachers?
- How can state policies alleviate statewide problems or regionally specific issues?
- Do state and district policies target the current problems?
- What grades or subjects have or will have shortages?
- Given the large number of rural districts with small numbers of teachers, how can changes in staff requirements be managed from year to year, especially with bulges of students moving from the early grades to the middle grades and then to high schools?
- How can state and district leaders work together to use information to make better decisions?